SALTON SEA TASK 3 - IDENTIFY POTENTIAL EMISSIONS SOURCES, SIGNIFICANCE CRITERIA AND ANALYTICAL TOOLS & METHODS

PREPARED FOR: John Vrymoed/DWR

PREPARED BY: Mark Bennett/SDO
Rebecca King/SEA
Carrie MacDougall/LAS
Mary Beth Yansura

REVIEWED BY: Gwen Buchholz/SFO
John Dickey/SAC
Pamela Vanderbilt/SAC
Mark Schaaf/Air Sciences

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Executive Summary

The Department of Water Resources (DWR), in coordination with the Department of Fish and Game, is Salton Sea Ecosystem Management Plan Programmatic Environmental Impact Report (PEIR). The study area for the PEIR is the Salton Sea watershed. The purpose of this technical memorandum is to:

- identify and describe potential air quality emission sources;
- identify applicable air quality significance criteria for the draft PEIR impacts analyses; and
- identify emissions factors, dispersion models, and other tools that can reasonably predict potential future impacts on air quality.

The recommended tools in this memorandum are focused on the development of the PEIR and the study area. Other estimates and tools are available, but they may not be appropriate for application in the study area, or they may require data that cannot be obtained in the time frame of the PEIR.

The memo identifies potential sources and pollutants that may result from the no-project or other alternatives to be evaluated in the PEIR, as well as emissions and dispersion models for each of these potential sources. The potential sources, pollutants and associated models are listed in Table ES-1.

Table ES-1
Potential Sources, Pollutants and Models

Potential Sources	Pollutants of Concern	Emissions Model	Dispersion Model
Area Sources	PM, NOx, SOx, CO, ROG and HAPs	URBEMIS	AERMOD or ISCST3
Boats and Personal Water Craft	PM, NOx, SOx, CO, ROG and HAPs	Offroad Model	AERMOD or ISCST3
Construction - Equipment	PM, NOx, SOx, CO, ROG and HAPs	Offroad Model and URBEMIS	AERMOD or ISCST3
Construction – Fugitive Dust	PM	URBEMIS	AERMOD or ISCST3

Table ES-1
Potential Sources, Pollutants and Models

Potential Sources	Pollutants of Concern	Emissions Model	Dispersion Model
Dying or Dead Biota, Volatilization of Compounds - Odors	ROG, HAPs and Odors	Direct Testing	AERMOD or ISCST3
Farming - Dust	PM	ARB Emission Factors	AERMOD or ISCST3
Farming - Engines	PM, NOx, SOx, CO, ROG and HAPs	Offroad Model	AERMOD or ISCST3
Farming - Pesticides	ROG and HAPs	AP-42, Chapter 9 and ARB Emission Factors	AERMOD or ISCST3
Mobile Sources – Exhaust/Tire Wear	PM, NOx, SOx, CO, ROG and HAPs	EMFAC2002	CALQHC3
Mobile Sources – Road Dust	PM	AP-42, Chapter 13 and ARB Emission Factors	AERMOD or ISCST3
Off-road Vehicles - Exhaust	PM, NOx, SOx, CO, ROG and HAPs	Offroad Model	AERMOD or ISCST3
Wind-blown Fugitive Dust	PM	MacDougall Method and WEPS	AERMOD or ISCST3

The MacDougall Method and WEPS model were selected to be used together to estimate wind-blown fugitive dust because employment of these two models appears to be the soundest approach. The MacDougall Method is based upon wind tunnel testing while WEPS is a computer model that simulates documented wind erosion processes. In this manner, limitations of each approach can be offset by corresponding strengths in the other method. The method used at the Owens Playa by the Great Basin Unified APCD is currently impractical for use on the Salton Sea Playa, since much of the potentially exposed area is currently under water. The Owens Playa method required years for implementation and data analysis, in addition to hundreds of pieces of monitoring equipment. Though impractical for the development of the PEIR, the Owens Playa approach may be useful for long-range monitoring under the PEIR.

Significance criteria are based upon the general conformity requirements and significance criteria from each of the four local air quality agencies having jurisdiction in the study area: Imperial County Air Pollution Control District (ICAPCD), the San Diego Air Pollution Control District (SDAPCD), the South Coast Air Quality Management District (SCAQMD), and the Mojave Desert Air Quality Management District (MDAQMD). The MDAQMD and SDAPCD have not established specific significance criteria, so the general conformity *de minimis* thresholds will be used for these areas. In addition to general conformity thresholds, the ICAPCD has established Best Available Control Technology (BACT) thresholds for NOx, CO, PM_{10}, and Reactive Organic Compounds (ROC). The SCAQMD has established significance criteria for construction activities in addition to operational activities. The construction limits are in terms of pounds/day. The operational criteria include limits on changes in ambient air concentration in addition to pounds/day limits.

Summary of Models and Tools

Model	Sources
AERMOD dispersion model[a]	Area Sources Boats Construction - Equipment Construction - Fugitive Dust Farming - Dust Farming - Engines Farming - Pesticides Mobile Sources - Road Dust Odors Off-road Vehicles - Exhaust Salton Sea - Volatilization of Compounds Personal Water Craft Wind-blown Fugitive Dust
AP-42, Chapter 9[b], Emission Estimates	Farming - Pesticides
AP-42, Chapter 13[b], Emission Estimates	Mobile Sources - Paved Road Dust
ARB Emission Factors[c]	Construction - Fugitive Dust Farming - Dust Farming - Pesticides Mobile Sources - Road Dust
CALQHC3[d]	Mobile Sources - Exhaust/Tire Wear
Direct Testing	Odors
EMFAC2002[e]	Mobile Sources - Exhaust/Tire Wear
Ideal Gas Law to Estimate Emissions	Salton Sea - Volatilization of Compounds
ISC3[f]	Area Sources Boats Construction - Equipment Construction - Fugitive Dust Farming - Dust Farming - Engines Farming - Pesticides Mobile Sources - Road Dust Odors Off-road Vehicles - Exhaust Salton Sea - Volatilization of Compounds Personal Water Craft Wind-blown Fugitive Dust
MacDougall Method[g] for Emission Estimates	Wind-blown Fugitive Dust
Offroad Model[h] Emission Estimates	Boats Construction - Equipment Farming - Engines Off-road Vehicles - Exhaust Personal Water Craft

Summary of Models and Tools

Model	Sources
SPECIATE[i] Emission Estimates	HAPs from a Variety of Source Categories
URBEMIS[j] Emission Estimates	Area Sources Construction - Equipment Construction - Fugitive Dust
WEPS[k] Emission Estimates	Wind-blown Fugitive Dust

[a] U.S. EPA, 1998. "Users Guide for The AMS/EPA Regulatory Model - AERMOD". Office of Air Quality Planning and Standards. Research Triangle Park, NC. November, 1998.

[b] U.S. EPA. Compilation of Air Pollutant Emission Factors, AP-42, Fifth Edition, Volume I: Stationary Point and Area Sources.

[c] 2003 Emission Inventory Methodology Documentation. http://www.arb.ca.gov/ei/documentation.htm

[d] U. E. EPA, 1992. User's Guide for CAL3QHC Version 2: A Modeling Methodology for Predicting Pollutant Concentrations near Roadway Intersections. Version 04244.

[e] California Air Resources Board (ARB) On-road vehicle emission model. Version 2.2. August, 2002

[f] U. S. EPA, 1995, User's Guide for the Industrial Source Complex (ISC3) Dispersion Models, Volumes 1 and 2. Version 02035.

[g] Western Regional Air Partnership. http://www.wrapair.org/forums/dejf/fderosion.html

[h] California Air Resources Board (ARB) OFFROAD Emissions Inventory Model. http://www.arb.ca.gov/msei/off-road/off-road.htm

[i] U.S. EPA SPECIATE. http://www.epa.gov/ttnchie1/software/speciate/index.html

[j] California Air Resources Board (ARB) Urban Emissions Model. URBEMIS 2002, Version7.5.0

[k] Hagen, L. J. et al, "Wind Erosion Prediction System (WEPS), BETA Release 95-08, Printed 2 October 1996.